

L Number	Hits	Search Text	DB	Time stamp
1	15	"rna polymerase" same (mutation or error) near3 induc\$5	USPAT; US-PGPUB; DERWENT	2003/10/29 12:31
2	810	("rna polymerase" same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 12:41
3	2	((("rna polymerase" same (mutation or error)) and (evolution or evolve or selection)) and gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:47
4	1	"in vitro" near2 evolution and gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:37
5	132	"rna polymerase" and gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:37
6	33	("rna polymerase" and gold.in.) and replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 12:40
7	0	("rna polymerase" and gold.in.) and replicase same pool	USPAT; US-PGPUB; DERWENT	2003/10/29 12:40
8	0	((("rna polymerase" same (mutation or error)) and (evolution or evolve or selection)) and replicase same pool	USPAT; US-PGPUB; DERWENT	2003/10/29 12:40
9	168	(replicase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
10	77	((replicase same (mutation or error)) and (evolution or evolve or selection)) and target same (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 12:41
11	52	((((replicase same (mutation or error)) and (evolution or evolve or selection)) and target same (evolution or evolve or selection)) not gold.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 12:59
12	409	hiv near8 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 12:59
13	89	(hiv near8 selection) and target near8 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
14	9249	(polymerase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
15	102	(hiv near8 selection) and (polymerase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:00
16	34	((hiv near8 selection) and target near8 selection) and (polymerase same (mutation or error)) and (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:01
17	32	((((hiv near8 selection) and target near8 selection) and (polymerase same (mutation or error)) and (evolution or evolve or selection)) and rna same (evolution or evolve or selection)	USPAT; US-PGPUB; DERWENT	2003/10/29 13:01

L3 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
DUPLICATE 2  
ACCESSION NUMBER: 1996:71325 BIOSIS  
DOCUMENT NUMBER: PREV199698643460  
TITLE: Why is the polymerase chain reaction resistant to in  
**vitro evolution**?  
AUTHOR(S): Bull, J. J. [Reprint author]; Pease, C. M.  
CORPORATE SOURCE: Dep. Zool., Univ. Texas, Austin, TX 78712, USA  
SOURCE: Journal of Molecular Evolution, (1995) Vol. 41, No. 6, pp.  
1160-1164.  
CODEN: JMEVAU. ISSN: 0022-2844.  
DOCUMENT TYPE: Article  
LANGUAGE: English  
ENTRY DATE: Entered STN: 27 Feb 1996  
Last Updated on STN: 27 Feb 1996

AB A variety of methods have been developed to amplify DNA and RNA. These methods vary in their susceptibility to evolve new molecular species differing from the starting template. PCR is exceptionally resistant to in **vitro evolution**, whereas methods such as Q-beta **replicase** and 3SR are much less robust. This paper develops some simple mathematical models which suggest that PCR is resistant to in **vitro evolution** because the reaction controls replication in discrete cycles: fast replication is of little advantage during PCR because the reaction limits fast replicators as well as slow ones to a single copy per cycle. In contrast, continuous (isothermal) reactions, as in the Q-beta **replicase** reaction, favor fast replicators. The advantage of fast replication is compounded in continuous reactions, because a fast replicator can complete many generations of replication during the time it takes a slow replicator to complete one generation. These models suggest that continuous amplification protocols will never achieve the robustness against in **vitro evolution** observed with PCR.

(FILE 'HOME' ENTERED AT 10:40:19 ON 29 OCT 2003)

FILE 'MEDLINE, BIOSIS, CAPLUS, EMBASE' ENTERED AT 10:40:31 ON 29 OCT 2003

L1	5619 S "IN VITRO SELECTION" OR AFFINITY SELECTION OR "IN VITRO EVOLU
L2	13 S L1 AND REPLICASE
L3	8 DUP REM L2 (5 DUPLICATES REMOVED)
	E COIA G?/AU
L4	0 S E7 E6 E1 E2
L5	84 S E7 OR E6 OR E1 OR E2
L6	17 S L5 AND (EVOLUTION OR SELECTION)
L7	8 DUP REM L6 (9 DUPLICATES REMOVED)
L8	6 S L7 NOT L3

L Number	Hits	Search Text	DB	Time stamp
1	9	coia-g\$.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 10:47
2	1	2000-039104.NRAN.	DERWENT	2003/10/29 10:50
3	1	"5602001"	DERWENT	2003/10/29 10:52
4	0	"5602001" and affinity	DERWENT	2003/10/29 10:53
5	0	"5602001" and select\$	DERWENT	2003/10/29 10:53
6	0	"5602001" and bind\$	DERWENT	2003/10/29 10:53

L Number	Hits	Search Text	DB	Time stamp
1	4722	affinity near10 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
2	10118	bind\$ near10 specific near10 ligand\$	USPAT; US-PGPUB; DERWENT	2003/10/29 10:33
3	3728	replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
4	0	(affinity near10 selection) same (bind\$ near10 specific near10 ligand\$) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
5	176	(affinity near10 selection) same (bind\$ near10 specific near10 ligand\$)	USPAT; US-PGPUB; DERWENT	2003/10/29 10:30
6	2	(affinity near10 selection) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:32
8	1	(bind\$ near10 specific near10 ligand\$) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:32
9	2905	vitro near10 selection	USPAT; US-PGPUB; DERWENT	2003/10/29 10:33
10	4	(vitro near10 selection) same replicase	USPAT; US-PGPUB; DERWENT	2003/10/29 10:34
11	2	taussing-\$.in.	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35
12	13885	(affinity near10 selection) or (bind\$ near10 specific near10 ligand\$)	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35
13	3026	((affinity near10 selection) or (bind\$ near10 specific near10 ligand\$)) and "RNA polymerase"	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35
14	13	((affinity near10 selection) or (bind\$ near10 specific near10 ligand\$)) near10 "RNA polymerase"	USPAT; US-PGPUB; DERWENT	2003/10/29 10:35